

REMARKS

Without acquiescing to the propriety of the rejections in the Office Action dated January 7, 2008, claims 1, 3, 11 and 15-23 have been amended and claims 5-7, 12 and 13 have been cancelled. Entry of these amendments, reconsideration of the present patent application, and allowance of all claims pending herein are respectfully requested in view of the remarks below. Claims 1-3, 8-11, and 14-23 are now pending.

Initially, applicant gratefully acknowledges the conditional allowance of claims 6 and 7 upon them being rewritten in independent form to include all the limitations of the base claim and any intervening claims. Claim 1 has been amended to incorporate the subject matter of claims 6 and 7 therein and thus is believed to be allowable.

§ 112 Rejections:

Claims 8, 9 and 11-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. In particular, claim 11 is objected to because the word “means” is alleged to be used in an attempt to use a “means” clause to recite a claim element as a means for performing a specified function. According to the Office Action, because no function word precedes “means” it is impossible to determine the equivalents of the element. Claim 11 has been amended to utilize “means for” language instead of “means to” language and thus this rejection is believed to be overcome.

Claims 8, 9, and 15-22 stand rejected because the word “means” is preceded by “orifice”, “nozzle”, and “chamber” in an alleged attempt to use a “means” clause to recite a claimed element as a means for performing a specified function. It is alleged that no function is specified by the words preceding “means”, thus making it impossible to determine the equivalents of the element. The indicated claims have been amended to remove the “means” language and thus this rejection is believed to be overcome.

§ 102 Rejections:

Claims 1-5 and 8-23 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bingham (U.S. Patent No. 5,456,629).

Amended claim 11 recites, *inter alia*, an apparatus for generating a high-velocity cutting jet which includes means for forming a high-velocity jet of liquid water, means for forming a suspension of an abrasive material in a carrier gas comprising steam and means for entraining the suspension into the jet of liquid so that at least a part of the steam condenses to produce a jet of a mixture comprising abrasive material and liquid water.

Bingham discloses an apparatus for cutting and abrading with sublimable particles which includes a fluid delivery system for delivering liquid nitrogen, gaseous nitrogen and gaseous carbon dioxide to a nozzle assembly. The assembly receives and directs a stream having a high velocity liquid nitrogen jet surrounded by a particle sheath of solid carbon dioxide particles. A high velocity gaseous nitrogen outer jacket surrounds the carbon dioxide particle sheath and is concentric with the liquid nitrogen jet and particle sheath. The jet produced from the nozzle is a high density, high velocity and has a uniform particle stream. However, there is no disclosure in this reference of means for entraining a suspension of an abrasive material and a carrier gas including steam into a jet of liquid water so that at least a part of the steam condenses to produce a jet of a mixture comprising abrasive material and liquid water. Instead, it is desired that the carbon dioxide particles remain solid to maintain their abrasiveness as described in lines 58-64 of column 4. There is no disclosure of the gaseous nitrogen condensing to produce liquid nitrogen nor is it desirable to do so as such a change in phase of the liquid nitrogen may cause a change in temperature of the carbon dioxide particles thereby causing them to sublime and a loss of such particles' abrasive qualities. Further, as described in line 65 of column 4 to line 10 of column 5, the carbon dioxide gas freezes upon contact with the liquid nitrogen jet and there is no disclosure of the gaseous nitrogen condensing to form liquid nitrogen. In contrast, at least a part of the steam condenses to produce a jet of a mixture which includes abrasive material and liquid water as recited in claim 11 of the present application. Accordingly, because all the features (e.g., means for entraining a suspension of an abrasive material in a carrier gas including steam into a jet of liquid so that at least a part of the steam in the carrier gas condenses to produce a jet of a mixture including abrasive material and liquid water) of claim 11 of the present application are not identically disclosed by Bingham, this claim cannot be anticipated thereby. Thus, claim 11 is believed to be allowable along with the dependent claims which are believed to be allowable for the same reasons and for their own additional features.

As indicated above, claim 1 is believed to be allowable as it has been amended per the allowable subject matter indicated in the Office Action. Thus, claim 1 is believed to allowable along with the claims depending thereon.

CONCLUSION

It is believed that the application is in condition for allowance, and such action is respectfully requested.

If a telephone conference would be of assistance in advancing prosecution of the subject application, the Examiner is invited to telephone the undersigned attorney at the telephone number provided.

Respectfully submitted,



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